

REMARKS

This is in full and timely response to the Office Action mailed on January 21, 2005. Reexamination in light of the following remarks is respectfully requested.

Claims 21-28, 30, 35-36, 38-46, 48-49 and 53-58 are currently pending in this application, with claims 21 and 41 being independent. *No new matter has been added.*

Entry of amendment

This amendment *prima facie* places the case in condition for allowance. Alternatively, it places this case in better condition for appeal. Accordingly, entry of this amendment is respectfully requested.

Allowable subject matter

Appreciation is expressed for the indication that claims 31, 34, 49 and 52 contain allowable subject matter. Accordingly, the features of claim 31 have been incorporated into independent claim 21 to form amended claim 21, and the features of claim 49 have been incorporated into independent claim 41 to form amended claim 41.

Allowance of amended claims 21 and 41 and the claims dependent thereon is respectfully requested.

Drawing Objections

The Office Action contends that reference numeral 100 found within figure 1 has not been described within the specification as originally filed.

This objection is traversed at least for the following reasons.

The specification as originally filed provides that figure 1 depicts a fingerprint identification apparatus, and that the fingerprint identification apparatus constitutes a personal identification apparatus for identifying a person according to a fingerprint image fetched by a *pick-up block 10* (Specification at page 4, lines 6-15). As shown in figure 2, the *pick-up block 10* includes a light source 11, a prism 12, and pick-up means 13 (Specification at page 4, line 20 to page 5, line 1). Here, the subject is a fingerprint of a finger 100 for identifying an individual person 13 (Specification at page 5, lines 4-5). Moreover, “finger 100” is found thought the specification as originally filed.

Accordingly, a description of reference numeral 100 found within figure 1 has been described within the specification as originally filed. Withdrawal of this objection is respectfully requested.

The Office Action contends that a description for “interface block 6” found on page 15 of the specification as originally filed is not found within the drawings.

In response to this contention, while not conceding the propriety of this objection and in order to advance the prosecution of the above-identified application, the specification has been amended.

Withdrawal of this objection is respectfully requested.

The Office Action contends that a description for “D flip-flop 56” found on page 19 of the specification as originally filed is not found within the drawings.

In response to this contention, while not conceding the propriety of this objection and in order to advance the prosecution of the above-identified application, the specification has been amended.

Withdrawal of this objection is respectfully requested.

Title Objection

The Office Action includes an objection to the title, and suggests a new title as "Random Number Generation Apparatus And Random Number Generation Method Using Ambient Light."

In response, appreciation is expressed for this suggestion. However, it is believed that the current title of "Random Number Generation Apparatus And Random Number Generation Method" is consistent with the scope of the claimed invention.

Withdrawal of this objection is respectfully requested.

Claim Objections

The Office Action includes an objection to claim 37.

In response to the objection to claim 37, claim 37 has been canceled without prejudice or disclaimer of its underlying subject matter.

Withdrawal of this objection is respectfully requested.

The Office Action includes an objection to claims 27, 31, 34, 45, 49 and 52.

In response to this objection, claims 27 and 45 have been amended in the manner requested. Moreover, the features of claim 31 have been incorporated into independent claim 21 along with the requested amendment to form amended claim 21, and the features of claim 49 have been wholly incorporated into independent claim 41 along with the requested amendment form amended claim 41. In addition, claims 34 and 52 have been canceled without prejudice or disclaimer of its underlying subject matter. Appreciation is expressed for the Examiner's helpful suggestion.

Withdrawal of this objection is respectfully requested.

Rejection under 35 U.S.C. §112

Claim 28 was rejected under 35 U.S.C. §112, second paragraph.

In response to this objection, claim 28 has been amended in the manner suggested by the Examiner. Appreciation is expressed for the Examiner's helpful suggestion.

Withdrawal of this rejection and allowance of the claims is respectfully requested.

Rejections under 35 U.S.C. §103

These rejections are traversed at least for the following reasons.

The Office Action indicates that that claims 31, 34, 49 and 52 contain allowable subject matter. Accordingly, the features of claim 31 have been incorporated into independent claim 21 to form amended claim 21, and the features of claim 49 have been incorporated into independent claim 41 to form amended claim 41.

Moreover, U.S. Patent No. 6,215,874 to Borza et al. (Borza) arguably teaches a random number generator. Borza arguably teaches that all 60,000 pixels can be summed and averaged (column 4, lines 65-66). Borza arguably teaches that for each transducer and average value is determined (column 9, lines 38-39).

However, Borza fails to disclose, teach or suggest generating a binary image from the gray scale image, a binary image pixel of the binary image being generated by comparing the gray scale pixel value with an average of gray scale pixel values for the plurality of gray scale pixels, the binary image pixel having a binary pixel value expressed by a single bit.

U.S. Patent No. 5,774,549 to Neilson arguably teaches a method and apparatus that processes a video signal to generate a random number generator seed. Neilson arguably teaches that if a sliding area is determined to be 3 * 3 pixels, then for the first 3 * 3 pixel area in the current video image signal VI_i, the values of the pixels are averaged (column 4, lines 24-26).

Neilson arguably teaches that, for the previously received video image signal, the values of the pixels in the corresponding 3 * 3 pixel area are averaged (column 4, lines 26-28). Neilson arguably teaches that the difference is determined between the two averages. (column 4, lines 28-29). Neilson arguably teaches that the 3 * 3 pixel area is "slid" one pixel at a time, first over, and then down, and the averaging and differencing operation is repeated for each new 3 * 3 pixel area (column 4, lines 29-32). Neilson arguably teaches that, when the averaging and differencing operation has been performed on all the 3 * 3 pixel areas in the image signals, the absolute value of the differences for all the areas are summed together and compared to the threshold value T (column 4, lines 32-36).

But Neilson fails to disclose, teach or suggest generating a binary image from the gray scale image, a binary image pixel of the binary image being generated by comparing the gray scale pixel value with an average of gray scale pixel values for the plurality of gray scale pixels, the binary image pixel having a binary pixel value expressed by a single bit.

U.S. Patent No. 6,259,801 to Wakasu arguably teaches a method for inserting and detecting a watermark.

Yet, Wakasu fails to disclose, teach or suggest generating a binary image from the gray scale image, a binary image pixel of the binary image being generated by comparing the gray scale pixel value with an average of gray scale pixel values for the plurality of gray scale pixels, the binary image pixel having a binary pixel value expressed by a single bit.

U.S. Patent No. 5,541,994 to Tomko et al. (Tomko) arguably teaches a fingerprint controlled public key cryptographic system.

Nevertheless, Tomko fails to disclose, teach or suggest generating a binary image from the gray scale image, a binary image pixel of the binary image being generated by comparing the gray scale pixel value with an average of gray scale pixel values for the plurality of gray scale pixels, the binary image pixel having a binary pixel value expressed by a single bit.

Bruce Schneier, "*Applied Cryptography, Second Edition, Protocols, Algorithms and Source Code in C*", pp. 466-474, fails to disclose, teach or suggest generating a binary image

from the gray scale image, a binary image pixel of the binary image being generated by comparing the gray scale pixel value with an average of gray scale pixel values for the plurality of gray scale pixels, the binary image pixel having a binary pixel value expressed by a single bit.

Withdrawal of these rejections and allowance of the claims is respectfully requested.

Conclusion


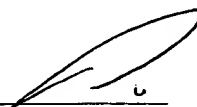
For the foregoing reasons, all the claims now pending in the present application are allowable, and the present application is in condition for allowance. Accordingly, favorable reexamination and reconsideration of the application in light of the amendments and remarks is courteously solicited.

If the Examiner has any comments or suggestions that could place this application in even better form, the Examiner is requested to telephone Brian K. Dutton, Reg. No. 47,255, at 202-955-8753 or the undersigned attorney at the below-listed number.

If any fee is required or any overpayment made, the Commissioner is hereby authorized to charge the fee or credit the overpayment to Deposit Account # 18-0013.

Dated: March 21, 2005

Respectfully submitted,

By  

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